



Surveillance

Dr Pierre Nabeth

Programme Area Manager, Health Emergency Information and Risk Assessment (HIM)
WHO Health Emergencies Programme – EMRO
nabethp@who.int



The International Health Regulations (IHR)

- What is it?
 - When were they adopted?
 - By whom?
- Legally binding instrument of international law
 - Aim for international collaboration to prevent, protect against, control, and provide a public health response to the international spread of disease
 - First adopted by the [World Health Assembly](#) in 1969 and last revised in 2005
 - IHR(2005) = 196 countries including the 194 WHO Member States



The International Health Regulations(2005)

- Paradigm shift for surveillance
 - Any public health risk
 - All sources of information
 - Core capacities
- Core capacities for surveillance
 - Timely detection of all events with potential public health risk
 - Immediate reporting and response



Definition of Surveillance

According to the IHR(2005)

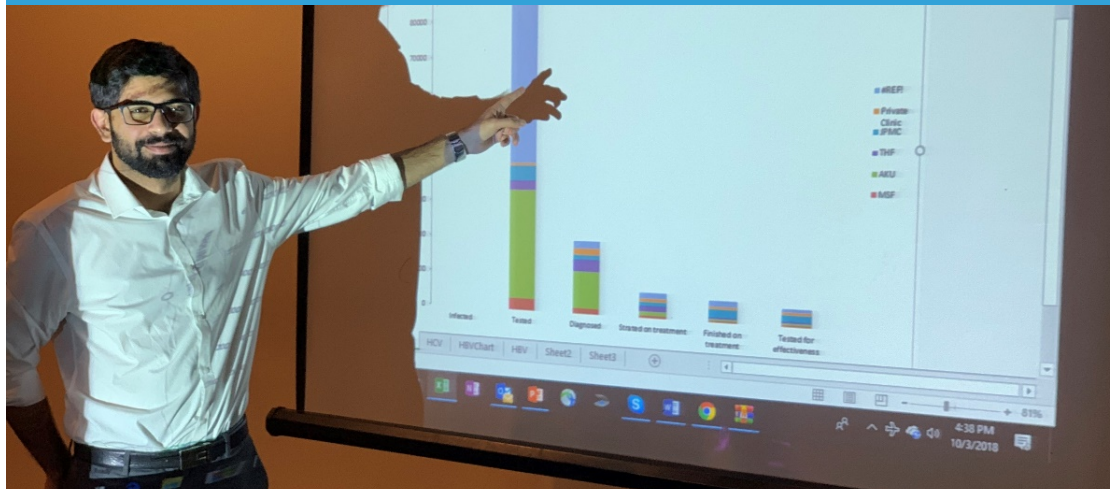
The systematic ongoing collection, collation and analysis of data for public health purposes and the timely dissemination of public health information for assessment and public health response as necessary

Different objectives to disease surveillance

Routine

Programmes

Estimate burden
Describe trends
Evaluate interventions
Guide decisions for disease control/elimination/eradication

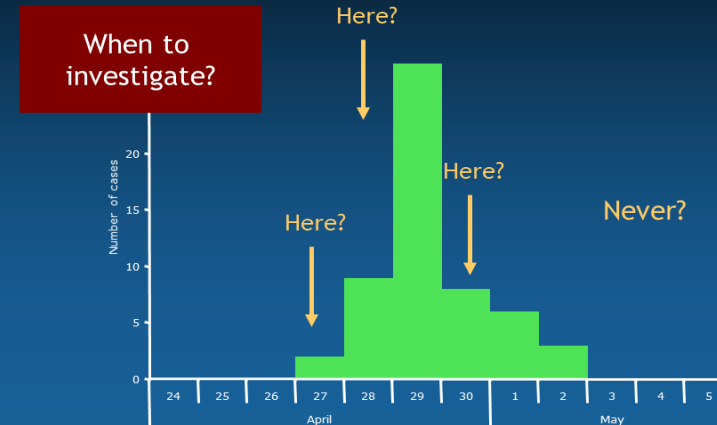


Early warning

Emergencies

Detect outbreaks
Identify risk factors
Generate hypotheses during outbreaks

Cases of cholera by date of onset, May 2006





Early Warning And Response (EWAR)

- Objective:

Minimize the negative health consequences of an acute public health event

- Characteristics:

- Sensitivity of detection
- Quality of risk assessment
- Timeliness
- Effectiveness

- Requiring:

- Broaden sources of information
- Multisectoral collaboration
- Standardized processes



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Any Public Health Risk

- Any event
 - Immediate threat to human health
 - Requiring prompt action
- Including
 - Cases of disease or syndrome
 - Potential for diseases (exposure)
 - contaminated food, chemical leakage...
 - Consequence of natural event, conflict...

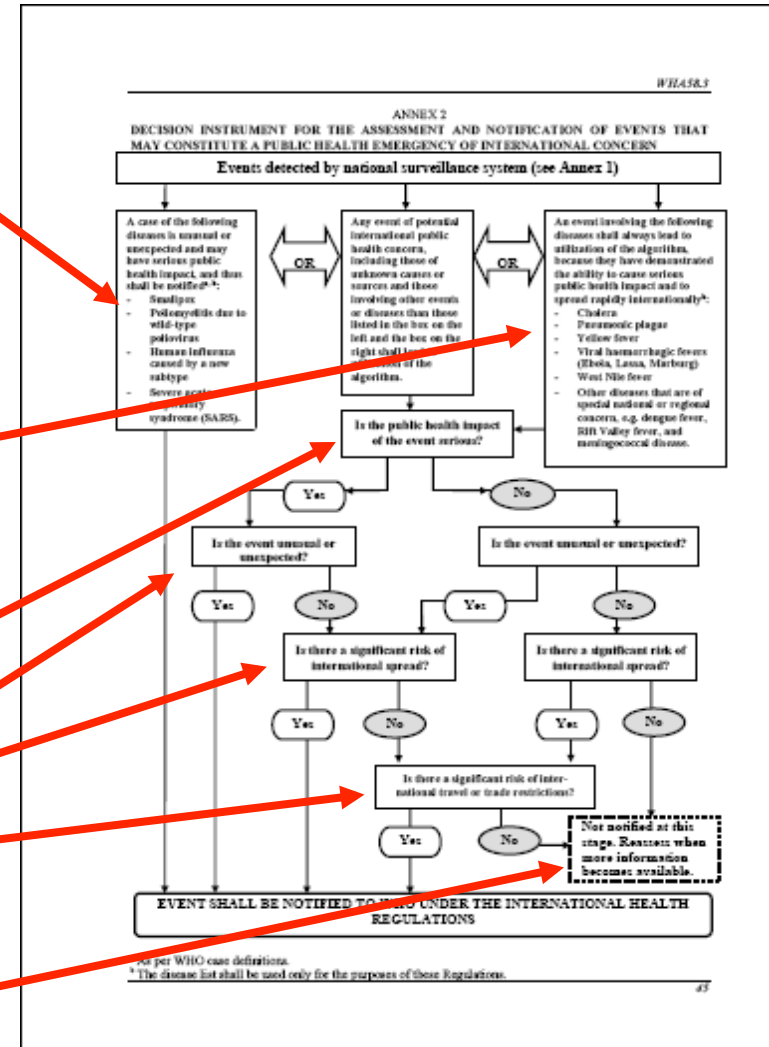
Decision instrument (Annex 2)

4 diseases that shall be notified **polio (wild-type polio virus), smallpox, human influenza new subtype, SARS**

Disease that shall always lead to utilization of the algorithm: **cholera, pneumonic plague, yellow fever, VHF (Ebola, Lassa, Marburg), WNF, others....**

Q1: public health impact serious ?
Q2: unusual or unexpected ?
Q3: risk of international spread ?
Q4: risk of travel/trade restriction ?

Insufficient information: **reassess**





The International Health Regulations(2005)

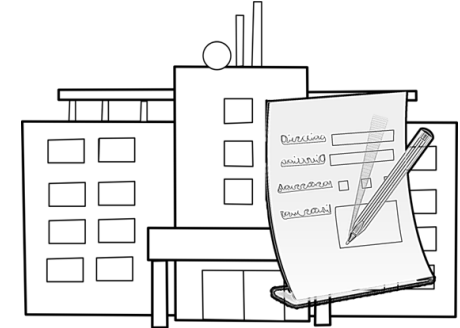
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All sources of information

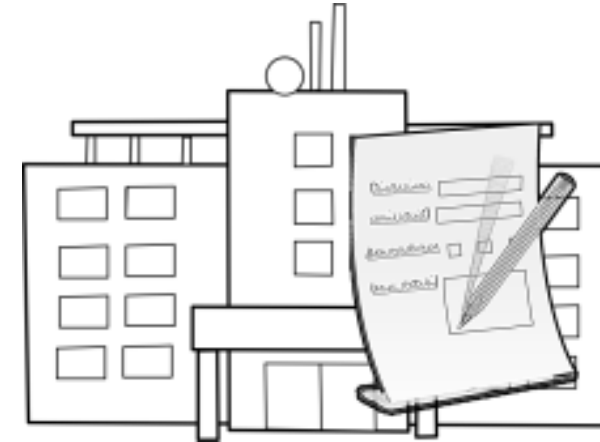
- Indicator-Based Surveillance
 - Structured data
 - Routinely produced
 - Passively collected
 - With established case definitions
 - Analysed in comparison to thresholds for EWAR purposes
 - Mainly health-based sources (but not only)
- Event-based Surveillance
 - Related to any event with a potential acute risk to human health
 - Information
 - Mainly unstructured
 - Mainly actively collected through a specific framework





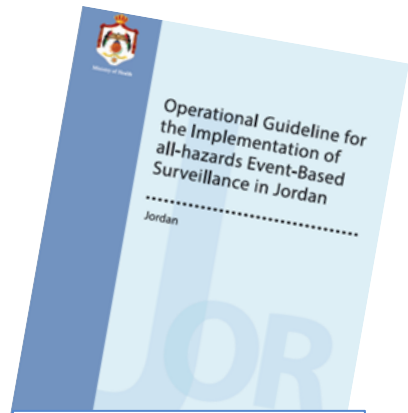
Sources of data for IBS

- Health-care facilities
- Laboratories
- Death registers
- Non-health sources with regularly-produced indicators



Sources of data for EBS

- **Human sources:**
 - Health providers and traditional healers
 - Pharmacy sales
 - Points of entry
 - Educational establishments
 - Industry...
- **Non-human health sources:**
 - Veterinary services
 - Police, customs
 - Water supply companies
 - Atomic/Radiation Safety authority...
- **Community**
- **Media**
- **Internet**
- ...

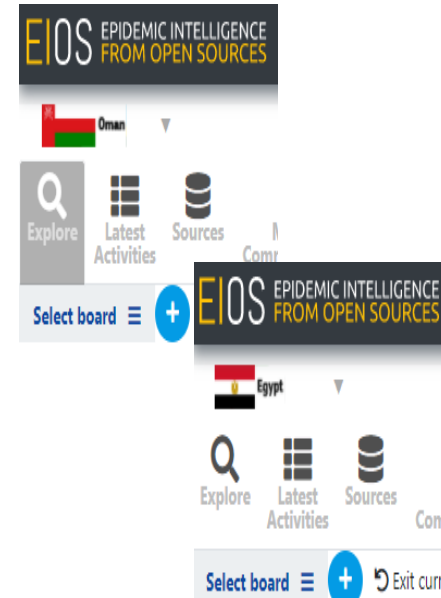


Module de formation à la surveillance
fondée sur les événements dans
les établissements de santé

Guide de l'animateur

« Le présent document est un projet en cours de préparation, qui est distribué à des fins pédagogiques dans le cadre de cet atelier de formation. Il ne devrait faire l'objet d'aucune distribution ultérieure et ne devrait être communiqué à quiconque à l'issue de l'atelier de formation. Les droits d'auteur du présent document reviennent aux organisations qui l'ont mis au point. »

Centers for Disease Control and Prevention (CDC US)
Programmes de formation à l'épidémiologie et aux interventions en santé publique (EPHINET)
Africa Centers for Disease Control and Prevention (CDC Afrique)
Bureau régional OMS de la Méditerranée orientale



Often not predetermined
Official and non official
Health & non health



IBS for EWAR

Pros	Limits
<ul style="list-style-type: none"> • Essential for EWAR • Highly valuable for <ul style="list-style-type: none"> • Known diseases, • Stable context • Broad access to healthcare / laboratory facilities • Specificity • Reliability 	<ul style="list-style-type: none"> • Scope <ul style="list-style-type: none"> • Often communicable diseases • Fixed list of diseases & syndromes • Timeliness <ul style="list-style-type: none"> • Reporting procedure /data analysis • Delays for biological confirmation • Reactivity <ul style="list-style-type: none"> • Fixed case definitions, procedures.... • Emergency situation • Coverage <ul style="list-style-type: none"> • Uneven accessibility to healthcare • Hard to reach areas & population • Natural disaster, instability, conflict...

Practice: What kind of surveillance is it ?

- Weekly collection of the number of cases of measles in a health facility



OR



Practice: What kind of surveillance is it ?

- Screening of local media every morning followed by a meeting to discuss the findings

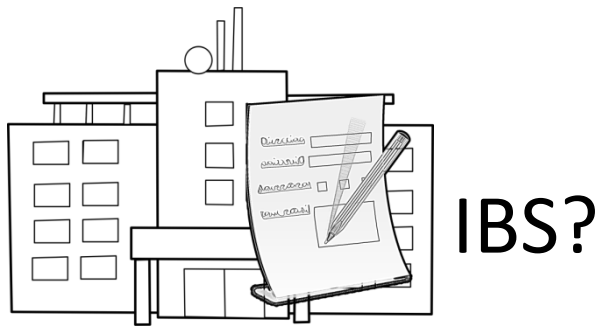


OR



Practice: What kind of surveillance is it ?

- Collection of number of fevers in the community



OR



Practice: What kind of surveillance is it ?

- Absenteism at school



OR





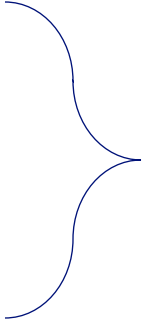
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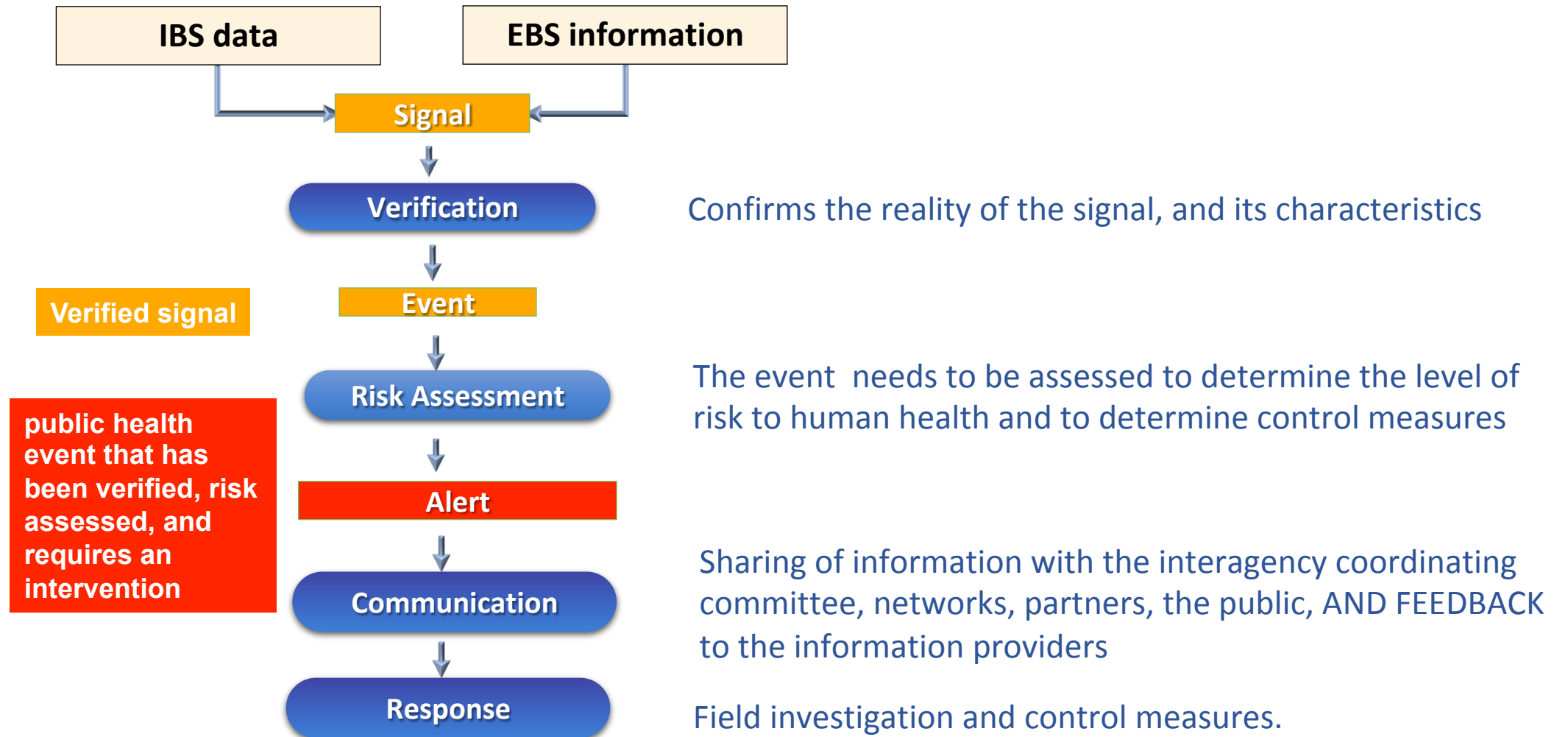


EWAR Process: Epidemic intelligence

- Systematic collection, analysis, and communication of information to:
 - Detect
 - Verify
 - Assess
 - Investigate

Events and health risks with an EWAR objective
- Integrates Indicator-based surveillance and event-based surveillance

Steps of Epidemic intelligence





Evaluation of surveillance

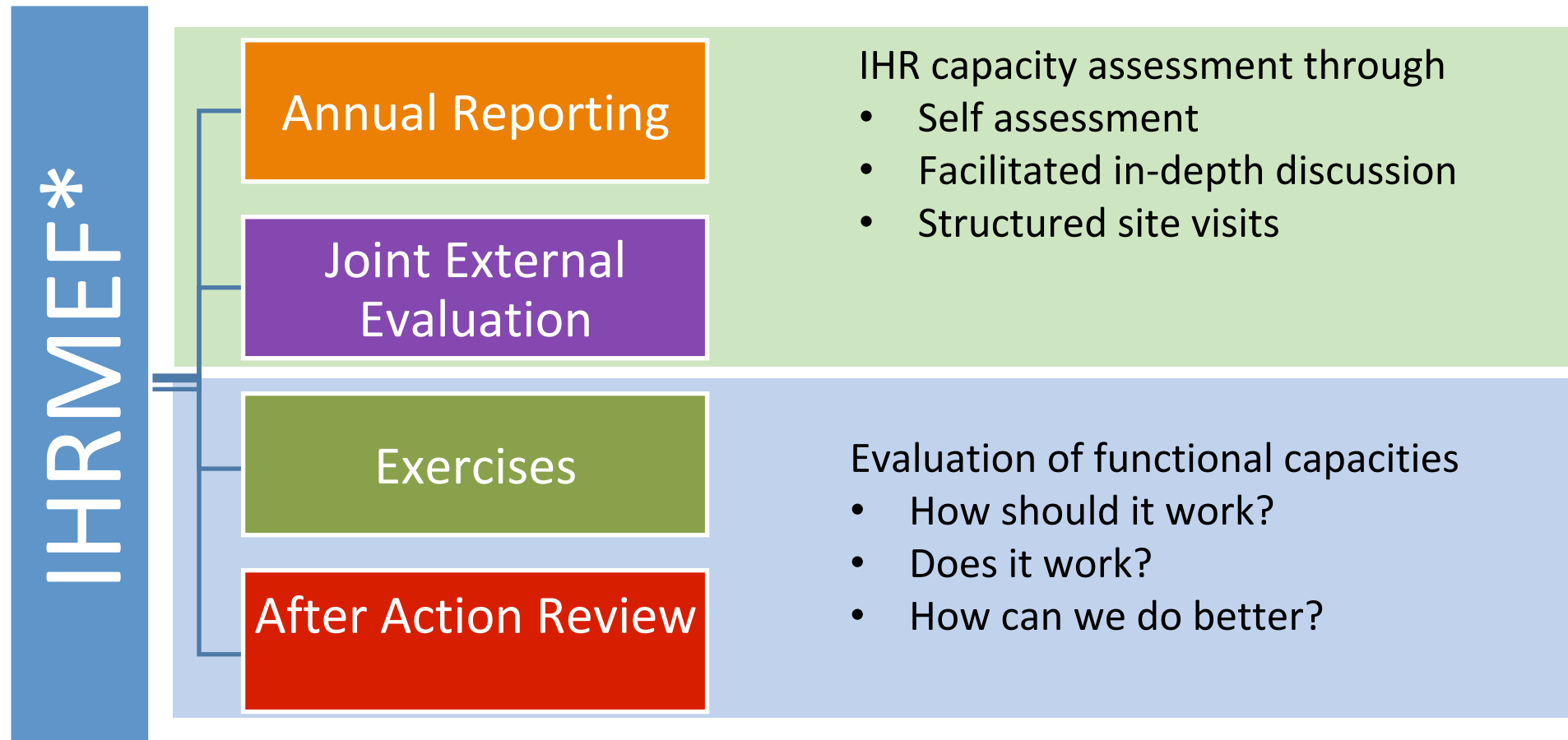
- CDC
 - Simplicity
 - Flexibility
 - Data quality
 - Acceptability
 - Sensitivity
 - Predictive value positive
 - Representativeness
 - Timeliness
 - Stability
- WHO
 - More qualitative

The screenshot shows the CDC MMWR website header with the title "Updated Guidelines for Evaluating Public Health Surveillance Systems" and the subtitle "Recommendations from the Guidelines Working Group". Below the title, it says "Guidelines Working Group". The WHO logo is visible, along with the text "World Health Organization". The main title of the document is "Framework for the Evaluation of Surveillance Systems for the Early Warning/Detection of Disease Outbreaks (Draft V5.0)". At the bottom, there is a table with the following information:

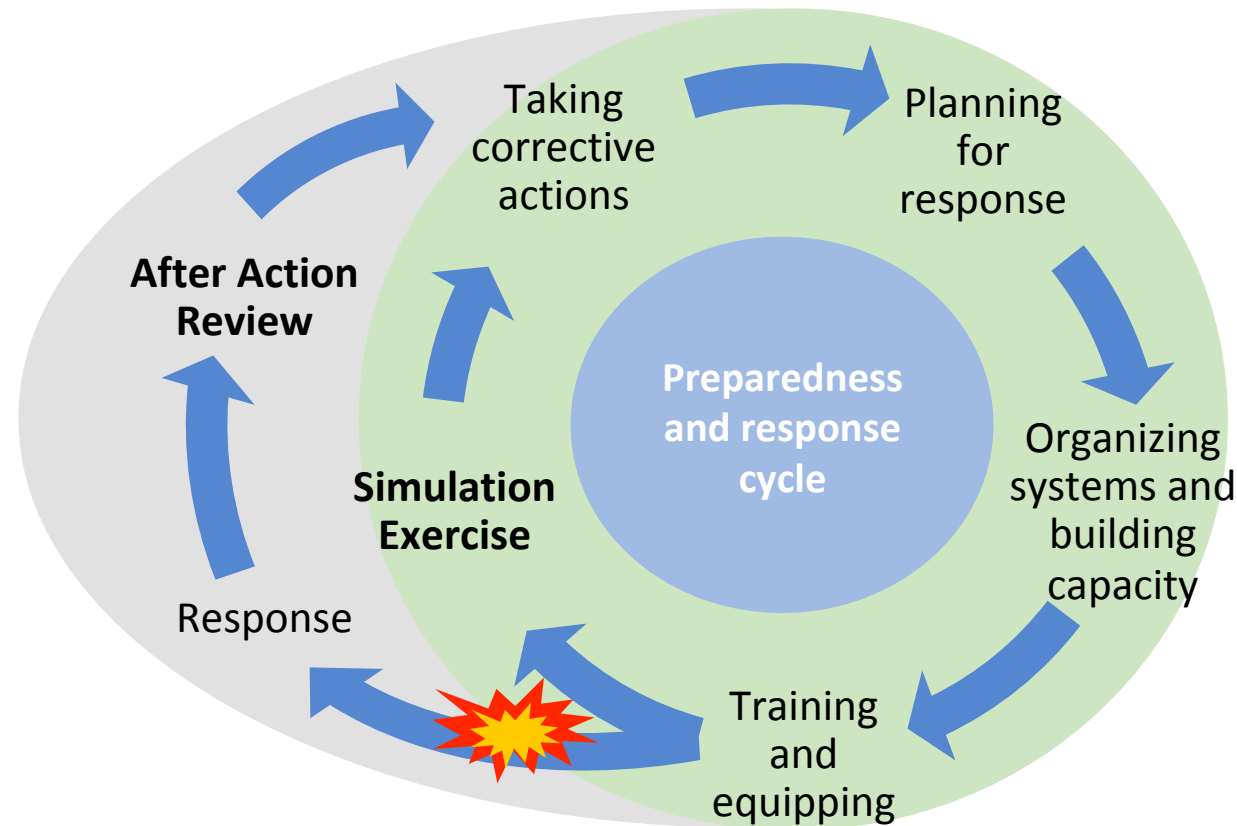
DEPARTMENT NAME:	World Health Emergencies Program
DOCUMENT VERSION:	Draft Version 5.0
DATE:	1 st Dec 2021

IHR Monitoring and Evaluation Framework

To ensure that countries are well prepared and have acquired the capacities for surveillance



IHR Monitoring and Evaluation Framework



Requisites for efficient surveillance system: Core capacities for IHR (JEE)

Indicators	
Level	C6.1 Early warning function: indicator-and event-based surveillance
Level 1	The surveillance system for diseases/syndromes/events (reporting, feedback, communication) is under development <input type="checkbox"/>
Level 2	Standard operating procedures (SOPs) and/or other written technical guidelines for surveillance have been developed and implemented at the national, intermediate and local levels of the surveillance system <input type="checkbox"/>
Level 3	Surveillance data/information are collected via either indicator-based ⁴⁷ or event-based ⁴⁸ surveillance on ad hoc basis <input type="checkbox"/>
Level 4	Surveillance data/information are collected via both indicator-and event-based surveillance with regular reporting and immediate notification taking place in a systematic manner <input type="checkbox"/>
Level 5	Surveillance system is regularly evaluated and updated <input type="checkbox"/>

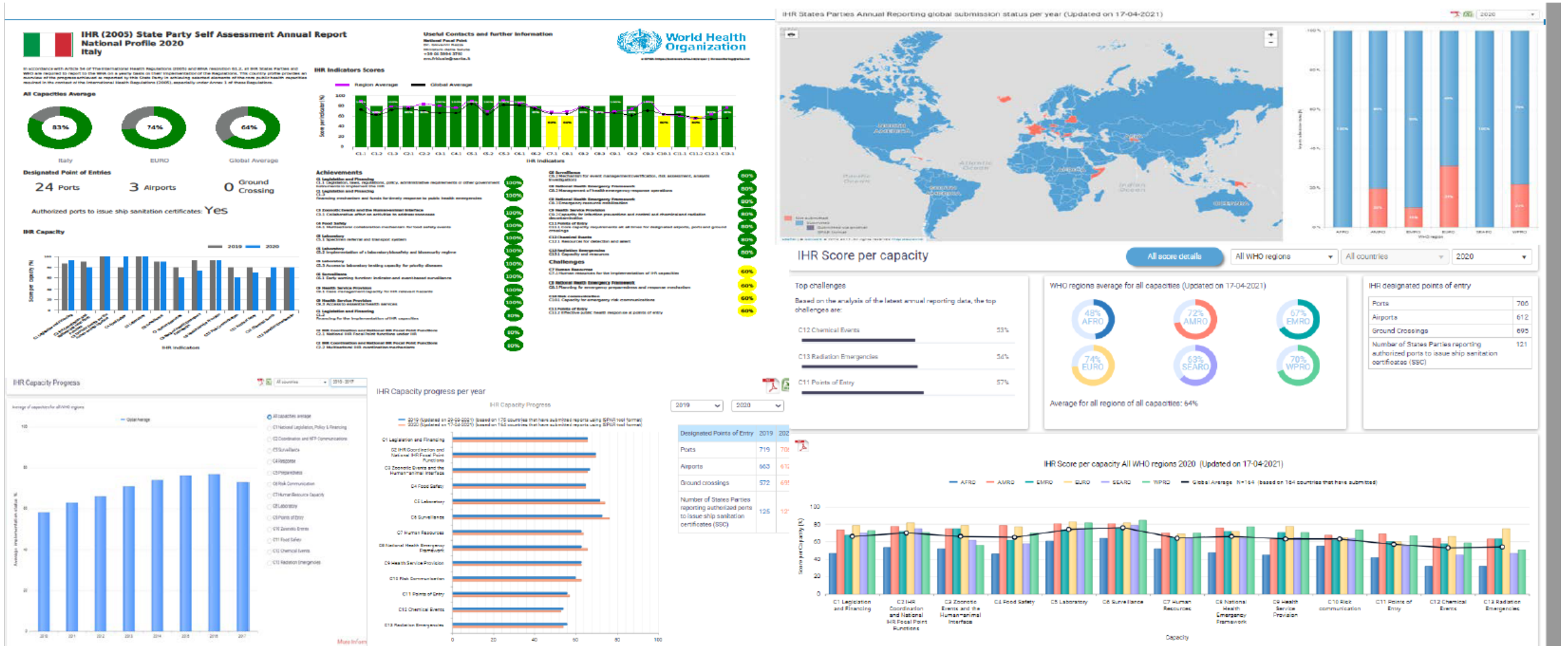
Level	C6.2 Mechanism for event management (verification, risk assessment, analysis ⁴⁹ investigation)
Level 1	There is unstructured mechanism for event management <input type="checkbox"/>
Level 2	SOPs and/or other written technical guidelines for event management are developed and disseminated to national, intermediate and local levels <input type="checkbox"/>
Level 3	Event verification, risk assessment, investigation and analysis are systematically performed and guide a response by national and intermediate levels AND Findings are disseminated by production of periodical epidemiological reports <input type="checkbox"/>
Level 4	Event verification, risk assessment, investigation and analysis are systematically performed and guide a response by national, intermediate and local levels AND Results of all events that may constitute potential public health events of international concern are communicated to WHO and epidemiological reports are shared with all relevant sectors, ⁵⁰ and partners <input type="checkbox"/>
Level 5	Event management system is evaluated and updated on a regular basis <input type="checkbox"/>



Scoring

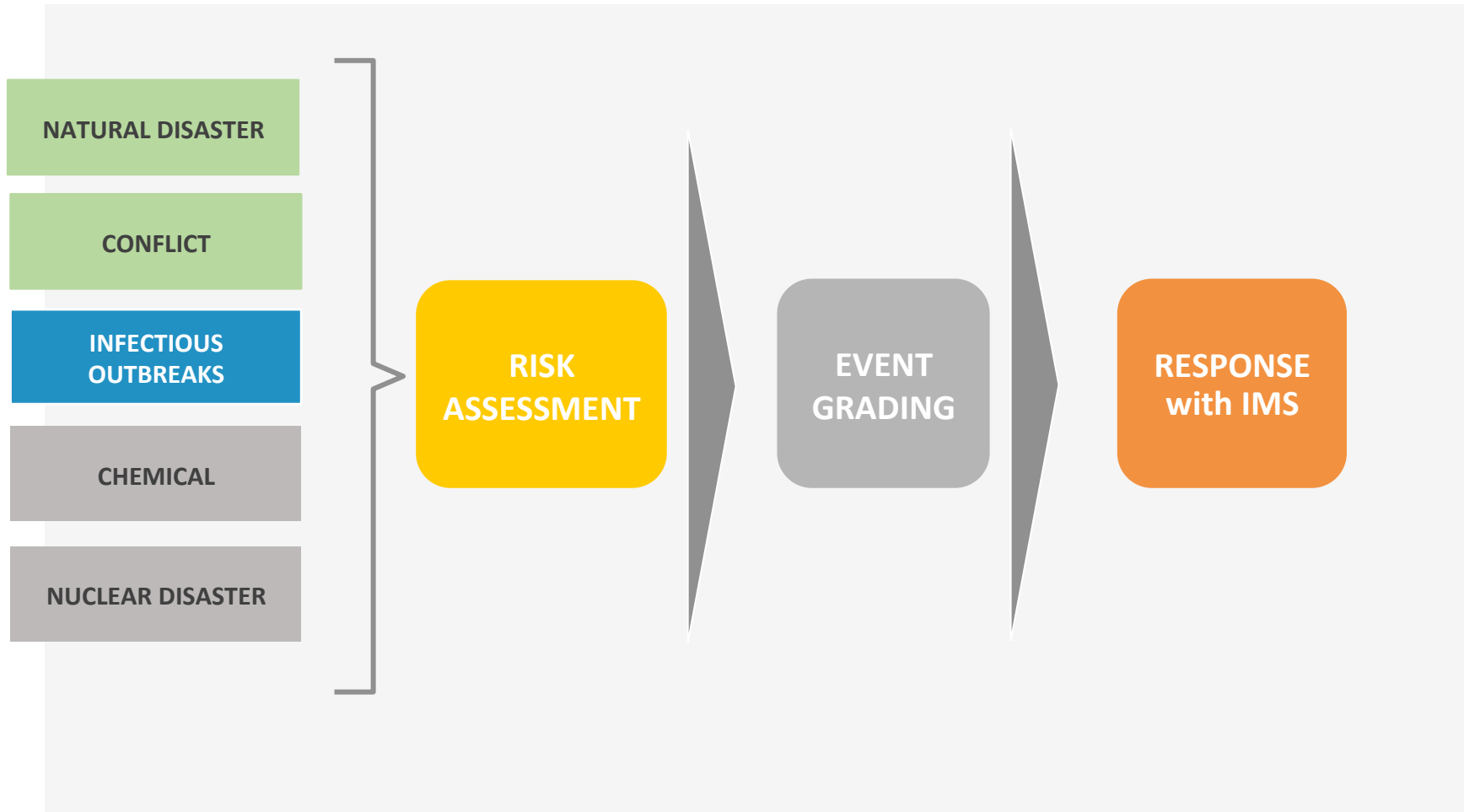
Score	Indicators - Real Time Surveillance			
	D.2.1 Indicator and event based surveillance systems	D.2.2 Interoperable, interconnected, electronic real-time reporting system	D.2.3 Analysis of surveillance data	D.2.4 Syndromic surveillance systems
No Capacity - 1	No indicator or event-based surveillance systems exist	No interoperable, interconnected, electronic real-time reporting system exists	No reports related to data collection	No syndromic surveillance systems exist
Limited Capacity - 2	Indicator and event-based surveillance system(s) planned to begin within a year	Country is developing an interoperable, interconnected, electronic real-time reporting system, for either public health or veterinary surveillance systems	Sporadic reports related to data collection with delay	Syndromic surveillance system(s) planned to begin within the next year; policy/legislation is in place to allow for syndromic surveillance
Developed Capacity - 3	Indicator OR event-based surveillance system(s) in place to detect public health threats	Country has in place an inter-operable, interconnected, electronic reporting system, for either public health or veterinary surveillance systems. The system is not yet able to share data in real-time.	Regular reporting of data with some delay; ad-hoc teams put in place to analyse data	Syndromic surveillance system(s) in place to detect 1-2 core syndromes indicative of public health emergencies
Demonstrated Capacity - 4	Indicator and event-based surveillance system(s) in place to detect public health threats	Country has in place and interoperable, interconnected, electronic real-time reporting system, for public health and/or veterinary surveillance systems. The system is not yet fully sustained by the host government.	Annually or monthly reporting; attributed functions to experts for analysing, assessing and reporting data	Syndromic surveillance system(s) in place to detect three or more core syndromes indicative of public health emergencies
Sustainable Capacity - 5	In addition to surveillance systems in country, using expertise to support other countries in developing surveillance systems and provide well-standardized data to WHO and OIE for the past five years without significant external support	Country has in place an inter-operable, interconnected, electronic real-time reporting system, including both the public health and veterinary surveillance systems which is sustained by the government and capable of sharing data with relevant stake-holders according to country policies and international obligations.	Systematic reporting; dedicated team in place for data analysis, risk assessment and reporting	In addition to surveillance systems in country, using expertise to support other countries in developing surveillance systems

SPAR: Annual reporting





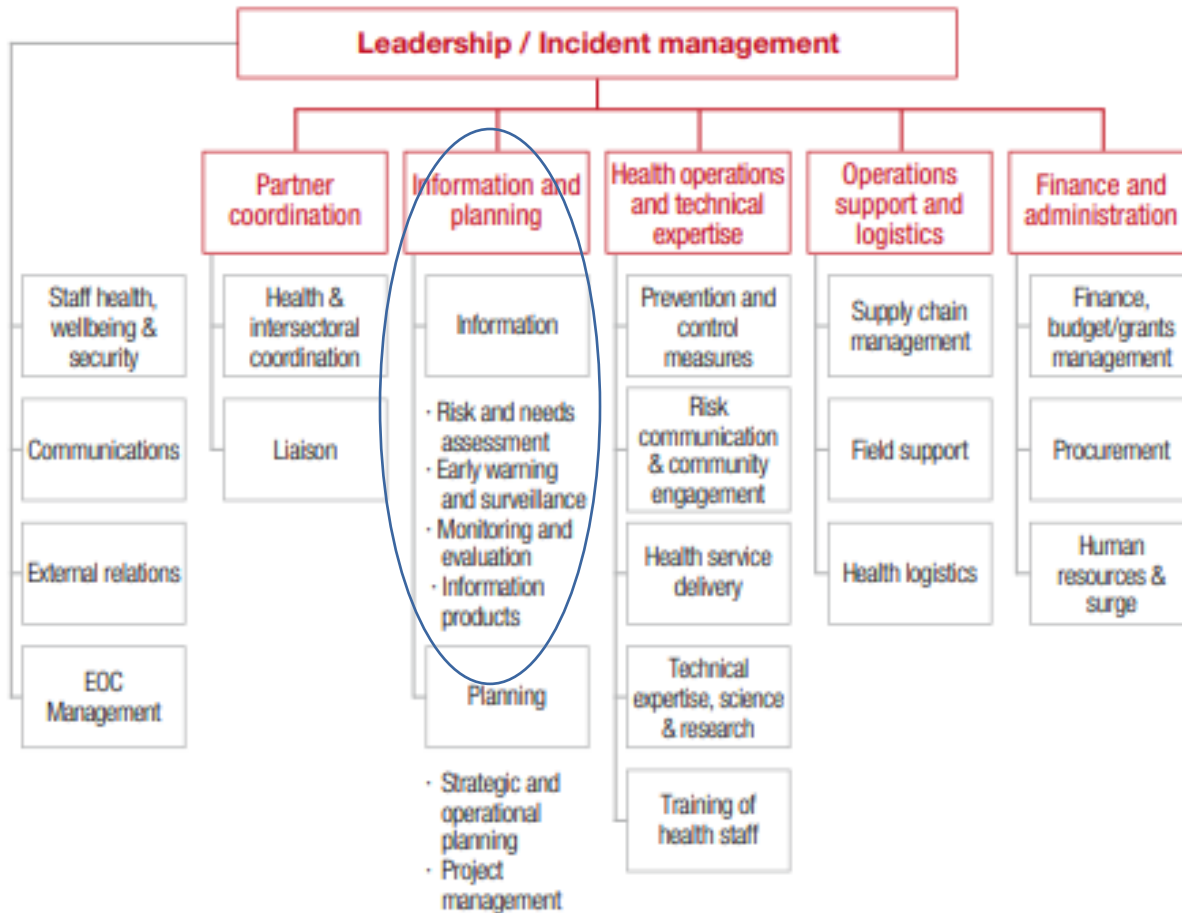
Response





IMS = Incident Management System

WHE Incident Management System (IMS) structure



Early warning & surveillance:

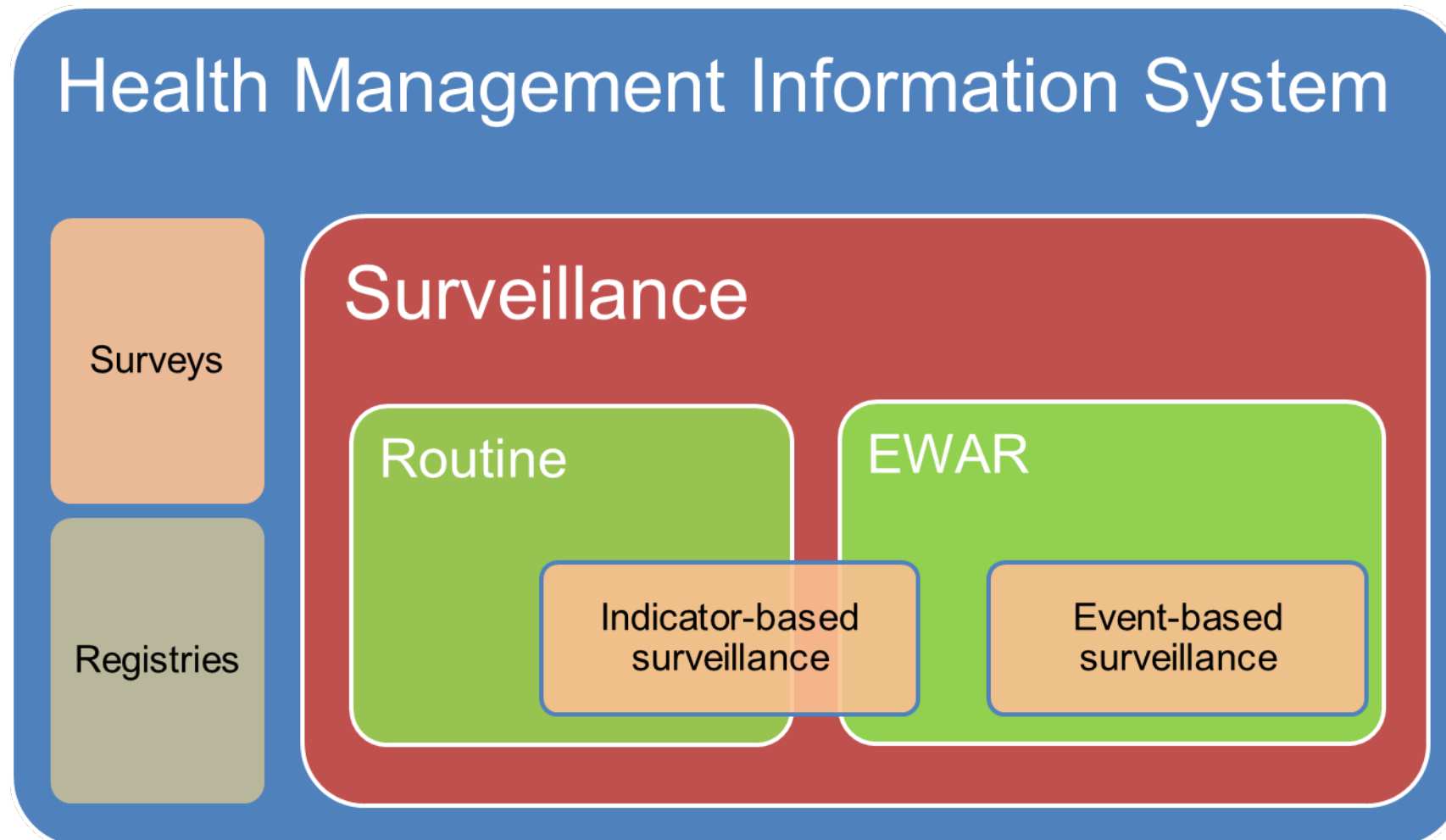
Strengthens the systematic collection, analysis and communication of any information used to detect, verify, and investigate events and health risks.

Supports the dissemination of data related to public health events.

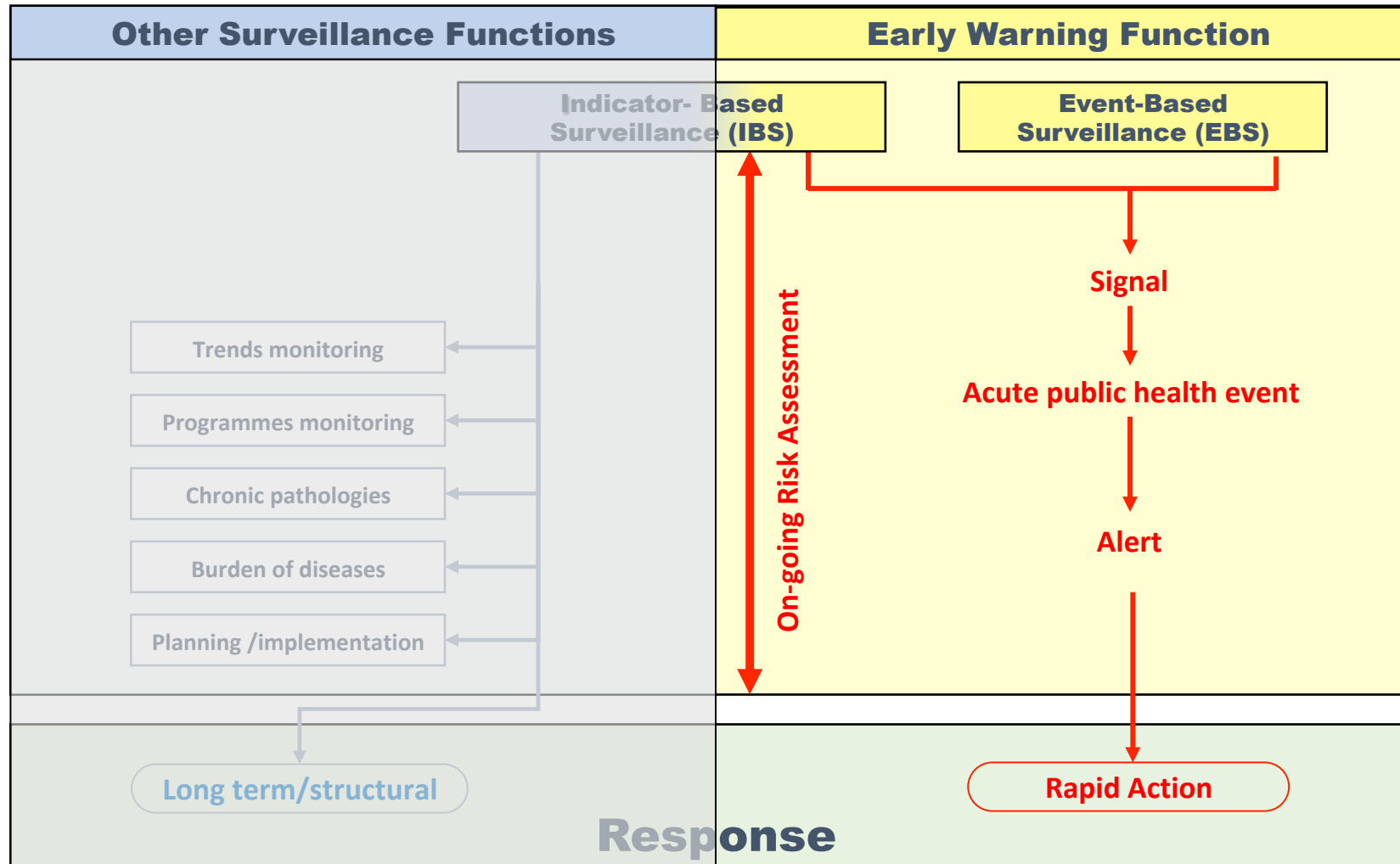
Establishes, strengthens and operationalizes rapid response teams that are responsible for the rapid investigation of alerts, field risk assessment and, when required, early operational response



Developing/implementing/Strengthening EWAR needs to be integrated with other surveillance and aligned with the HMIS



EWAR in the overall surveillance





National surveillance

CHALLENGES



Insufficient political commitment



Uncoordinated vertical programmes



Variable standards and systems



Lack of resources, inefficiencies



Insufficient data analysis



Weak laboratory link



Limited monitoring and evaluation



Limited use of information technologies

SOLUTIONS

Governance

Coordination, efficiency analyses

Technical convergence and harmonization

Pooling of resources, elimination of duplications

Capacity-building

Public health laboratory policy, linkage

Monitoring and evaluation framework, KPIs

Consolidated digital platform



EMR Integrated Disease Strategy and resolution at RC68



مشروع قرار
Draft resolution

REGIONAL COMMITTEE FOR THE
EASTERN MEDITERRANEAN

EM/RC68/R.3(D)
October 2021

Sixty-eighth session
Agenda item 3(b)

A regional strategy for integrated disease surveillance: overcoming data fragmentation in the Eastern Mediterranean Region

The Regional Committee,

Having reviewed the technical paper on a regional strategy for integrated disease surveillance: overcoming data fragmentation in the Eastern Mediterranean Region;¹

Recalling World Health Assembly resolutions WHA71.1 on the Thirteenth General Programme of Work, 2019–2023, and its “triple billion” goal of one billion more people benefiting from universal health coverage, one billion more people being protected from health emergencies and one billion more people enjoying better health and well-being, WHA59.22 on emergency preparedness and response, WHA64.10 on strengthening national health emergency and disaster management capacities and the resilience of health systems, and WHA58.1 on health action in relation to crises and disasters, as well as Regional Committee resolution EM/RC59/R.3 on health systems strengthening;

Recalling the conclusions of the 49th session of the Regional Committee, which recognized the benefits of an integrated surveillance approach;

Concerned about the COVID-19 pandemic, occurrence of epidemics and other public health emergencies in the Eastern Mediterranean Region with negative impacts on people’s health and livelihoods, as well as their social and economic burden on Member States;

Concerned about the negative consequences of epidemics and other public health emergencies on vulnerable populations in the Eastern Mediterranean Region, who already experience a large burden of disease and are exposed to multiple public health risks;

Recognizing the need to strengthen integrated disease surveillance as an integral part of building resilient health systems that can better address the potential impact of pandemics, epidemics and other health emergencies;



REGIONAL OFFICE FOR THE Eastern Mediterranean

Regional Committee for the Eastern Mediterranean
Sixty-eighth session
Provisional agenda item 3(b)

EM/RC68/5
October 2021

A regional strategy for integrated disease surveillance – overcoming data fragmentation in the Eastern Mediterranean Region

Executive summary

The COVID-19 pandemic has forcefully underlined the need for effective public health surveillance. Public health surveillance – a core component of health information systems and public health intelligence – detects potential public health threats and monitors disease morbidity and mortality to guide prevention and control measures. In addition to saving lives, effective disease surveillance and response offers a high return on financial investment because it may avoid potential large-scale economic disruption from epidemics and pandemics.

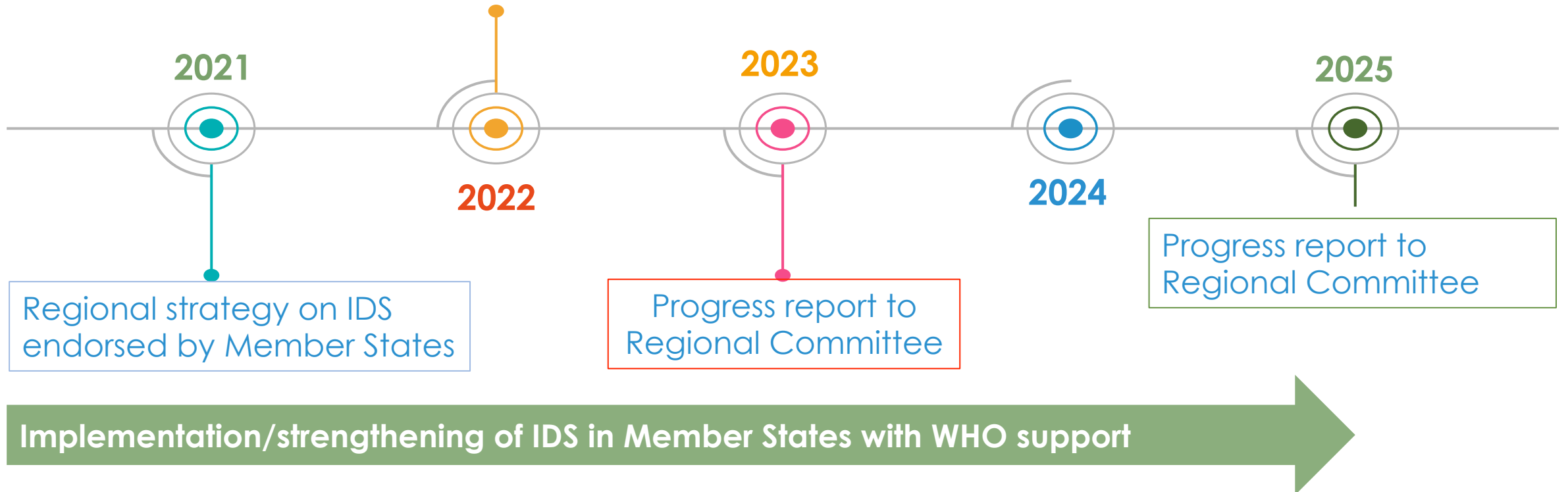
Most countries already have systems for disease-specific surveillance in place; however, these are usually not coordinated, and their implementation often leads to redundancies and gaps that make them less effective, particularly in early threat detection. The World Health Organization (WHO) proposes that the Member States of the Eastern Mediterranean Region commit to implementing effective, integrated disease surveillance (IDS) systems by the end of 2025. IDS will improve both the efficiency of health information systems and their effectiveness in the use of data to guide decisions, including for rapid response to epidemics, priority-setting, planning of interventions, resource mobilization and allocation, and monitoring and evaluation.

Effective IDS entails good governance and multisectoral coordination to organize the convergence of disease- and programme-specific systems towards integration; the development of consolidated technical guidance; progressive harmonization of data systems to generate a single master digital platform for the collection and management of data, and their communication; allocation of sufficient and appropriate financial, infrastructural and human resources; consolidation of data collection tools; timely analysis of data and the use of information in decision-making; a national public health laboratory policy to ensure reliable laboratory diagnosis with real-time electronic sharing of results with the data system that hosts epidemiological information; and a monitoring and evaluation framework that includes key performance indicators for regular monitoring, along with and formative and summative evaluations.

This paper sets out a proposed regional strategy for IDS in the Eastern Mediterranean Region to guide Member States in strengthening and integrating their national surveillance systems. This will feed into regional and global efforts to strengthen collective public health intelligence. The 68th session of the Regional Committee for the Eastern Mediterranean is invited to consider this draft strategy for endorsement or further revision.

Timeline IDS

- IT platforms used for surveillance in Region mapped
- Specificities of functional IT platform for IDS defined
- Technical guidance and training material developed



Imperial College
London

WHO Collaborating Centre
Public Health Education and Training



وقاية
أكاديمية الصحة العامة
Public Health Academy
هيئة الصحة العامة
PUBLIC HEALTH AUTHORITY

thank
you!